



TITLE:

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AUTHOR(S):

Takata, Yasuma

CITATION:

Takata, Yasuma. ON THE DIFFERENTIAL BIRTHRATE BY CLASSES. Kyoto University Economic Review 1931, 6(2): 34-50

ISSUE DATE:

1931-12

URL:

https://doi.org/10.11179/ker1926.6.2_34

RIGHT:

Kyoto University **Economic Review**

MEMOIRS OF
THE DEPARTMENT OF ECONOMICS
IN
THE IMPERIAL UNIVERSITY OF KYOTO

VOLUME VI
1931

PUBLISHED BY THE DEPARTMENT
OF ECONOMICS IN
THE IMPERIAL UNIVERSITY OF KYOTO

ON THE DIFFERENTIAL BIRTHRATE BY CLASSES

I

It is a well-known and commonplace fact that the birth-rate considerably differs according to classes. By classes I simply mean upper and lower social classes. In existing social conditions, the words "rich and poor" may be substituted for them.

While it is a patent fact that different classes, or, in other words, the rich and the poor, have different birthrates, there has hitherto been inadequate study in Japan of problems bearing on the differential birthrate by classes, such as the extent of this difference, the possibility of the growth of this disparity, and the effects of the general decline in birthrate on this differential birthrate, though in Europe these matters have been thoroughly looked into by many students of distinction. The object of this article is to make clear both the fact of the existence of this differential birthrate in Japan and the features of this phenomenon in Japan as contrasted with a similar phenomenon in Europe.

I hasten to state briefly my general view of the question under discussion, before proceeding to deal with it in detail. If the birthrate essentially differs according to rich or poor classes, this difference becomes more marked, as artificial restriction of births is introduced, for birth-control is not exercised uniformly in all social classes. There is a wide difference in the extent to which it is resorted to between people of different classes. Such being the case, the disparity in birthrate between different classes will, in a measure, become more pronounced, when there has been a general decline in birthrate. The law of the increasing difference in birthrate, to which I referred some time ago,

applies to this phase of the question. According to this law, the birthrate of the class, in which it is already low, decreases more rapidly than that of the class in which it is still comparatively high. Of course, this tendency will somewhat be held in check, when the decline in birthrate has become very general. That is to say, the time is bound to come when the difference in birthrate according to classes will be positively reduced. This is, however, a state of things which does not actually exist at present. If we know the differential birthrate by classes where the birthrate does not yet show any decline, or where there is, so to speak, no artificial restrictions of births yet, we can see, by contrasting it with the differential birthrate in advanced countries, the class difference in birthrate due to artificial means. This particular differential birthrate due to artificial means is entirely due to the causes which are responsible for the modern decline of birthrate. An explanation made of the decrease in birthrate means an explanation of the differential birthrate in so far as it is due to artificial causes.

II

It is a moot question how far the fact of the declining birthrate really exists in Japan. Let me, however, proceed with my present discussion on the assumption that the process of decline is fairly advanced. If then, there would be facts of two kinds in Japan which could contribute to the study of this problem. One is the disparity in birthrate between different classes that existed when no decline in birthrate was yet observable. This fact makes clear, on the whole, the extent of the difference in birthrate for different classes caused by biological and psychological circumstances, not by artificial circumstances. The other is the fact showing the present size of the difference. It enables us to know peculiarities about the differential birthrate in Japan; we can see by it how long later such

disparity arose, and how much less it is, in Japan as compared with other advanced countries.

Some time ago, I looked into the relation of the percentage of voters in the municipal elections to the birthrate in the fifteen wards of Tokyo. I must, of course, admit that the percentage of voters referred to does not form a reliable index of wealth. Nor can it be disputed that it was objectionable scientifically that the average birthrate in each ward, instead of the birthrate for each class of people, was looked into, and that the birthrate was counted for the population generally, not for the women capable of bearing exclusively. I was obliged to adopt this method in default of better data.

As the figures refer to 1913, they may be taken as indicating the conditions prevailing in the days when the modern restriction of births was not yet so marked:

Wards	1 Honjo	2 Koishi- kawa	3 Asa- kusa	4 Shiba	5 Azabu	6 Hongo	7 Yotsuya	8 Fuka- gawa
A) Birthrate...	31.9	29.9	29.3	27.7	27.7	27.0	25.3	25.3
B) Percentage of voters in municipal e- lections	2.67	2.00	2.85	3.48	3.00	2.89	2.55	1.84
Arithmetical average								
A).....	30.4			27.5			25.1	
B).....	2.51			3.12			2.23	

Wards	9 Kyo- bashi	10 Shitaya	11 Akasaka	12 Koji- machi	13 Ushi- gome	14 Kanda	15 Nihon- bashi
A) Birthrate...	24.6	24.5	23.2	22.4	21.9	20.3	17.9
B) Percentage of voters in municipal e- lections	2.29	1.94	3.84	3.70	3.71	3.35	4.42
Arithmetical average							
A).....	23.4			20.0			
B).....	3.16			3.83			

I know well that it is a very slipshod procedure to take for the basis of my argument the simple arithmetical average by dispensing with the process of weighting the birthrate in each ward by the population, but I am not at present in a position to make the requisite calculation.

In connection with the figures shown in the above table, I once remarked: "While they do not show that the birthrate is in inverse proportion to wealth, they make it clear that the birthrate is low in wards which are particularly rich. The ratio of the difference existing between the average of the birthrate for several rich wards which have a low birthrate and that of several other wards with a high birthrate to the latter average is about 30 per cent." I then took them to represent the differential birthrate by classes in the days when there was no artificial restriction of births (which means the so-called birth-control), but I now feel the necessity of re-examining this point of view fundamentally. There are results of research obtained by other methods which claim consideration.

In 1924, Dr. Toshio Koyama (Statistical Bureau of Tokyo Municipal Office) made inquiries into the relation between wealth and birthrate with regard to 2,200 families containing women married of over 40 years in the city of Niigata, the investigation being made by the public register at the Local Municipal Office. This research covered the whole city of Niigata and was made in pursuit of his ideal of "finding the birthrates for rich and poor in urban and rural districts throughout the country, by ascertaining the number of children born of couples in families where women, already past the age of bearing, had their husbands during their procreative age." His inquiries were made about "the families with married women of over 40 years of age (born before December 31st 1883), lest the limiting of the investigation to families with women of over 45 should considerably reduce the number of families for study."

"The arithmetical average obtained by dividing the

total number of the children born in the families belonging to each sectional group, classified according to the amount of income, by the total number of families, that is to say, the average number of children born of a married women who is past her procreative age, is given in the following table, side by side with the classification of incomes:

Classes by incomes	A	B	C	D	E	F	G	H	I	J
Amount of income (yen)	Under 100	100-200	200-300	300-400	400-500	500-600	600-700	700-800	800-900	900-1,000
Number of families	8	72	289	342	163	215	176	161	112	76
Average number of children born ...	4.50	4.91	4.12	4.44	4.82	5.13	5.05	4.98	4.85	5.29
Moving average ...	—	—	4.56	4.69	4.71	4.88	4.97	5.06	5.04	5.10

Classes by incomes	K	L	M	N	O	P	Q	R	Total
Amount of income (yen)	1,000-1,200	1,200-1,600	1,600-2,000	2,000-3,000	3,000-5,000	5,000-10,000	10,000-50,000	Above 50,000	
Number of families	140	136	95	85	48	41	35	6	2,200
Average number of children born ...	5.04	5.35	5.52	5.50	4.58	5.00	5.03	5.17	4.87
Moving average ...	5.21	5.34	5.20	5.19	5.13	5.06	—	—	—

From the above table it is gathered, though in a very general way, that the birthrate is low in families with small incomes and that the larger the family incomes, the higher the birthrate comparatively speaking, the highest rate being recorded in the centre part. The average number of the children born of 2,200 women of over 40 years in the city of Niigata is shown to be 4.85 per head. It is further shown that rather fewer children were born of poorer families than of richer families, though the difference is slight in the average number."

It is further observable that the lowest birthrate is shown in the case of families with incomes of 200 to 300 a year,

while the highest birthrate is recorded for those with incomes of 2,000 to 3,000. Of the 85 families falling under the former category, nine (10.6 per cent.), and of the 288 families belonging to the latter category, 48 (16.6 per cent.) were barren of children.

"The cause of this low birthrate for poorer classes and comparatively high birthrate for rich classes deserves careful study." It will be seen that a certain relation of inverse proportion exists between the birthrate and the age of marriage (for wives). The average age of marriage for groups with a low birthrate is high, while, on the contrary, that for groups with a high birthrate is low.

Classes by incomes	A	B	C	D	E	F	G	H	I	J
Age of marriage { husbands..	28.38	28.89	28.02	26.73	26.36	26.55	26.07	26.18	25.81	25.70
	wives	23.67	23.96	24.98	23.95	23.29	23.60	22.63	22.45	22.22
Classes by incomes	K	L	M	N	O	P	Q	R	Average	
Age of marriage { husbands..	26.20	26.20	25.50	25.11	25.56	25.16	23.55	24.90	26.47	
	wives	22.25	22.27	21.22	20.56	22.02	20.92	20.15	18.63	

Thus, "it is conceivable that the high or low age of marriage for wives belonging to each sectional group, and accordingly the average length of their procreative period after marriage inversely influences the average birthrate of the group concerned, comparatively independently of the consideration of wealth. It is, therefore, necessary to study the relation between the age of marriage and the birthrate for groups, rich and poor."

The amount of income (yen)		Under 300	300-800	800-1,000	1,000-5,000	5,000-10,000	Above 10,000
Where wives married under 19 years	Number	52	196	243	146	17	22
	Average number of children born	6.04	6.57	6.75	6.64	5.47	5.64
Where wives married between 19 and 25 years	Number	144	520	107	241	18	13
	Average number of children born	5.16	5.42	5.29	5.54	5.00	5.38

Dr. Koyama concludes: "Judging from the above statistical facts, it is possible that, given a large number of objects for observation, the average number of children per family in each classes will be found fairly equal, provided the age of marriage for wives is the same. This seems to indicate that wealth or poverty, or difference in material wellbeing, exerts little influence on the procreative capacity of women."

The results of Dr. Koyama's research certainly deserve careful attention. I once expressed the view that through the operation of Spencer-Doubliday's law that even where there is no artificial restriction of births, the birthrate declines automatically and naturally, or, in other words, supernutrition and intellectual development bring about a decline in birthrate, there might exist the maximum disparity of 20 to 30 per cent (of the highest birthrate of the time). Prof. Nitti's investigation of the birthrate for the different sections of Naples (in 1881 when there was yet no marked sign of fall in birthrate) revealed the figures pointing to the same conclusion. The results of Dr. Koyama's study repudiate this conclusion fundamentally. He declares that there is no difference in the rate of procreation between classes.

Can this theory be accepted? I may here point out that Dr. Koyama's research leaves out of consideration the

procreative capacity of those women who either died or got divorced before they attained the age of 40. Is it not possible, for instance, that in the classes with small incomes women of high procreative capacity die young? If such is the case, the procreative rate in such classes will really be higher than the results of Dr. Koyama's study show. Nor can it necessarily be said that all women belonged to the same defined classes throughout their age of bearing children. Herein lies the great difficulty of his method.

III

The tendency for the birthrate to decline has been manifesting itself in Japan also in recent years. At least, nobody can doubt that there has been the spread of knowledge about birth-control among the people, that there has been an increase in the propaganda organs for birth-control and that the number of those who practise it has increased. The question is how far all this has already been making itself felt on the birthrate.

To the question whether the decrease in birthrate is already manifesting itself in the figures of births in Japan, I reply in the affirmative. The rate has been declining since the Russo-Japanese War. To another question whether the decline due to artificial restriction of births in the modern sense has been noticeable in statistical figures, I dare to reply that it has been observable, though yet very weak in its tendency, since the beginning of the Showa era.

It is possible to think that since the Russo-Japanese War—since 1909-11 in particular, when the birthrate (in per-millage or what is called the trough birthrate) attained the record figure of 33.9 to 34.0—there has been a continuous fall in birthrate in Japan.

Indeed, the birthrate for a few years following 1920 showed an appreciable rise, but this is presumably due to the fact that as a result of the census taken in 1920, a large imaginary number was excluded from the total population

of the country, which had formed the basis of calculating the birthrate before that year. From this point of view, it seems impossible to regard the birthrate prior to 1920 in the same light as that after that year. The fact that the birthrate has since kept on its falling course makes it possible to conclude that this tendency has persisted uninterruptedly since 1909. I do not deny the official figures published, yet I cannot regard the decline in birthrate as due entirely to modern causes of decline. It is usual that the birthrate rises after a great war. The record birthrate after the Russo-Japanese War was only one illustration of this every repeating tendency. If the birthrate, once risen, comes down to the prewar level, it can hardly be described as illustrating the fall in birthrate due to modern causes. Moreover, there is no conclusive evidence of the birthrate in Japan falling below the rate prior to the Russo-Japanese War. For instance, the average birthrate between 1925 and 1929 was as high as 34.5, and it would be difficult to prove that it was lower than that between 1899 and 1903, when it stood at 32.3 (the birthrate for 1914-1918 was 32.3). The safest course seems to conclude that there is no sure evidence of the decline of birthrate, unless and until it is possible to prove the fact of decrease positively by calculating the "imaginary number in the population" (the number of people who exist in official register only, though really non-existent) and by taking other detailed circumstances into consideration.

By way of reinforcing this view, I may say that whereas the decline in birthrate due to modern causes and accordingly the falling birthrate as a general tendency, if it actually shows itself in statistical figures, ought to be manifest in cities—in large cities especially—before in anything else, this cannot be confirmed. The general conditions have undergone little change since I discussed this point about ten years ago.

I. BEFORE THE FIRST CENSUS			
Years	Birthrate of the cities which contain the population above 50,000	Birthrate of the cities which contain the population under 50,000	Average birthrate for Japan
1910.....	26.4	29.9	33.9
1911.....	26.8	29.6	34.0
1912.....	26.9	29.7	33.3
1913.....	25.8	28.7	33.2
1914.....	26.4	28.9	33.7
1915.....	25.7	27.5	33.1
1916.....	25.1	27.2	32.7
1917.....	24.9	26.0	32.3
1918.....	23.4	25.8	32.2
1919.....	24.2	26.0	31.6

During the period under review, there was a decline of 2.3 per mille. In the case of the cities with a population of over 50,000, the decline was 2.2. This shows that the decline of birthrate in urban districts was not very big. The fall of 3.9 in the birthrate for cities with a population of less than 5,000 may have been due to some economic causes.

II. AFTER THE FIRST CENSUS				
Years	Birthrate of the cities which contain the population above 50,000	Birthrate of the cities which contain the population above 50,000 (under 100,000)	Birthrate of the cities which contain the population under 50,000	Average birthrate for Japan
1920.....	—	28.3	29.9	36.2
1921.....	—	28.1	29.3	35.1
1922.....	—	27.9	29.2	34.2
1923.....	25.9	27.1	29.9	34.9
1924.....	26.6	26.1	29.6	33.8
1925.....	29.0	29.2	30.3	34.9
1926.....	27.7	29.1	30.0	34.8
1927.....	26.9	27.9	28.5	33.6
1928.....	27.3	29.2	29.1	34.4

During this period, whereas there was a decline of 1.8 in the birthrate for the whole country, there was a rise of 0.9 in the birthrate in cities with a population of over 50,000. There was no particular sign of decrease in the urban districts.

As the above tables indicate, there is no ground for the belief that there has been a marked decline (a bigger decline than for the whole country) in the birthrate in cities—large cities in particular. This means that the figures available do not yet reveal any trace of the decline of birthrate in the modern sense in Japan.

A single exception to the rule is, however, furnished by the city of Tokyo.

Years	Birthrate in Tokyo	Birthrate in Osaka	Average birthrate for the whole country
1920.....	27.16	26.23	36.2
1921.....	29.19	25.33	35.1
1922.....	27.00	25.43	34.2
1923.....	22.15	25.00	34.9
1924.....	25.02	23.48	33.8
1925.....	28.80	26.68	34.9
1926.....	25.20	27.43	34.8
1927.....	24.57	26.10	33.6
1928.....	22.82	26.95	34.4

Against a 1.8 decline in the birthrate for the whole country during this period, there was a positive increase in the birthrate of Osaka. In the case of Tokyo, there has been a considerable decline since 1926. This decline may, in part, have been brought about mechanically or automatically, so to speak, through the change in the organisation the age construction of population, but when it is remembered that the growth of the birth-control movement and the spread of knowledge about birth-control synchronised with this period, it seems possible to detect the operation of modern causes in this decline. If so, it may be said

that the first sign of the general current of the declining birthrate due to modern causes, which set in first in western Europe, appeared in the birthrate of Tokyo in the early years of Showa. It appears that the birthrate in Japan will gradually fall hereafter.

Thus viewed, it will be seen that, in so far as Japan is concerned, the differential birthrate accentuated by modern causes must be sought in the actual birthrate of Tokyo. What figures represent this differential birthrate in the recent birthrate of Tokyo, then? In order to ascertain this fact, it is necessary to find the precise birthrate (the number of births for 100 women capable of bearing) for all classes, but this is more than I can do at present. The only method I can avail myself of now is to compare, in an indirect way, the brutto birthrate (the number of births per population of 1,000) in wealthy districts with that in poorer districts. In the following table, the amount of income per head in each ward on which the C-class income tax (tax on the total income of individuals minus interest on public bonds, debentures and bank deposits) is levied is contrasted with the birthrate (figures are those of 1928). A comparison of this birthrate with that of 1913 is also added.

COMPARISON OF BIRTHRATES FOR ALL WARDS OF TOKYO IN 1928						
Wards	Population	C-class income taxed (thousand yen)	The said income per capita	Birth-rate	Number in 100 women	Comparison with birthrate for 1913
Kojimachi	62,700	23,598	376	19.7	30.55	- 2.7
Kanda.....	143,000	19,306	135	18.1	33.07	- 2.7
Nihonbashi	116,800	32,864	281	15.6	29.38	- 1.3
Kyobashi	133,800	18,377	135	33.6	35.89	+ 9.0
Shiba	190,700	28,883	151	39.8	35.21	+ 17.1
Azabu	97,700	27,310	381	19.6	35.81	- 8.1
Akasaka.....	67,900	16,801	248	26.3	32.41	+ 6.9
Yotsuya	83,300	13,279	158	22.9	35.78	- 2.4
Ushigome	144,400	23,505	148	28.3	34.18	+ 6.4
Koishigawa	169,600	26,315	155	31.1	35.88	+ 1.2

Hongo.....	150,100	24,110	162	29.2	34.17	+ 2.2
Shitaya	191,900	11,550	51	24.2	39.58	- 0.3
Asakusa	258,000	16,178	61	20.7	39.38	- 8.6
Honjo	230,300	9,476	41	24.4	40.44	- 7.5
Fukagawa	178,200	8,307	47	24.9	41.13	- 0.4
Total or average.	2,218,400	29,986	133	—	34.13	—

From the data furnished by the figures in the above table, we can gather that the birthrate in each ward of Tokyo has no direct relation to the degree of wealth, for although the birthrate is lowest in a few richest wards, the next lowest birthrate is shown in a few poorest wards. As regards the percentage of women of ages between 20 and 40 with their husband, it is low in the former, while it is high in the latter. This fact leads one to believe that the procreative rate is low among the women of lower classes. Several wards which rank between the richest and poorest wards have the highest birthrate; the proportion of the women of ages between 20 and 40 there is, on the whole, medium. From this fact, it may be inferred that the procreative rate in the middle classes is generally high.

This conclusion is not in conflict with the results of the investigation recently made by Dr. Koyama about Tokyo women along the same lines as he did about Niigata women. According to the results of his research, the average number of children born of married women who are past the age of bearing shows no marked difference between different classes, though it is noticeable that it is smallest among the women of the lowest class, comparatively large among those of middle classes and somewhat smaller among those of the highest class. But as his figures refer exclusively to the number of children born of these women by their present husbands, it is likely that the actual average number of children born of women belonging to low classes, in which divorces are more frequent, is larger than they indicate.

In short, so far as the results of investigation con-

cerning Tokyo are concerned, there is no indication of the fact that birthrate is highest in the poorest ward, though it is clearly shown that the richest ward has the lowest birthrate. In the analytical study of the population of Tokyo, it may be pointed out, it is necessary to take two disturbing factors into consideration. One is the fact that Tokyo still has some parts where the post-quake restoration work is not yet complete, with the natural result that there exist various circumstances which may be regarded as reflecting a state of transition. The other is that the city of Tokyo, is merely part of Great Tokyo, and that the major portion of the residential quarters lies outside the city. From this point of view a comparison of birthrates by wards, with exclusive reference to the present city limits, can hardly be described as complete. After all, a more complete and closer study is necessary before any final verdict can be passed.

As already stated, Tokyo has clearly shown a decline in her birthrate in recent years, but this decline is by no means big in middle and upper classes. It is particularly marked in poor wards such as Asakusa and Honjo. Is it not possible that this phenomenon has something to do with the difficulty of living caused by the great Kwanto earthquake? Does not the fact that the decline is most marked in the wards where the standards of living are lowest militate against the contention that it is entirely due to the modern causes which are responsible for the gradual fall of birthrate in advanced countries? These are questions which I cannot adequately deal with at present.

Let me now turn attention to the birthrate in Osaka, which does not yet show any visible sign of decline.

The quotient obtained by dividing the total amount of income, on which the income tax is levied, by the population of each ward, — which represents the taxable income (C-class income tax) per head, — is taken as the measure of wealth for each ward, which I shall call "A." The average number of children born of 1,000 women of ages from 15

to 59 (though it is rational to set the maximum age at 45 or 50, the statistical materials available do not allow me to do so) is next sought. This I shall call "B." These two are put in contrast in the following table:

Wards	Higashi	Nishi	Minami	Kita	Sumi-yoshi	Tennoji	Naniwa
Taxable income (C-class) per head (A)..	286	262	224	128	119	116	69
Births per 100 women of ages: 15-59 (B)...	86	79	73	106	133	95	178
Wards	Kono-hana	Minato	Nishi-nari	Nishi-yodogawa	Higashi-yodogawa	Higashi-nari	
Taxable income (C-class) per head (A)..	63	59	56	40	39	36	
Births per 100 women of ages: 15-59 (B)...	132	154	150	146	147	170	

The birthrate is, on the whole, in inverse proportion to "A". In other words, the richer the ward, the lower the birthrate, and the poorer the ward, the higher the birthrate. The disparity in birthrate is as high as nearly 50 per cent. That is to say, the lowest birthrate is one half of the highest birthrate. But for the reason I have already stated, it will be difficult to conclude that the major part of this difference is attributable to artificial restriction of births.

In this respect also, no incontrovertible argument is possible, unless the precise birthrate for each ward for years past is compared, but for the moment I am in possession of no sufficient facilities to enable me to do this. With this handicap duly recognised, I shall proceed with my theorising.

I have come to the conclusion that the difference in birthrate between the rich and poor classes is already accentuated by restriction of births in Tokyo—and in Tokyo only, and I have sought the size of this disparity. But seeing that no clear knowledge of this phase of the question

can be acquired by the methods available at present, partly because Tokyo is presumably still in a transition period of earthquake restoration and partly because the city of Tokyo constitutes only part of Great Tokyo, I have been compelled to turn to Osaka for what may be regarded as the differential birthrate not influenced by restriction of births. This inquiry has led to the discovery of the fact that it is high as about 50 per cent. This fact is apparently at direct variance with the conclusions of the investigation made in regard to the city of Niigata. How, then, are we to interpret this apparent inconsistency?

I first thought that the conclusion reached by Dr. Koyama as the result of his investigation, namely, the view that there exists no difference in the procreative rate between the rich and poor classes, is true only of small cities like Niigata, and that it is irrelevant in respect of large cities. But as Dr. Koyama now asserts that his subsequent study concerning women in Tokyo who are past the age of bearing pointed to practically the same conclusion, I may have to alter my opinion on this point.

My present view is that, of the various data already given, one factor most decisive of the problem under discussion is the birthrate for each ward of Osaka. In this city, the birthrate is high in poor wards and low in rich wards. This is in accord with the results of investigations made by Bertillon and many other investigators regarding large European cities. The inconsistencies between these and the results of Dr. Koyama's investigation may, however, be harmonised in the following manner:

1. David Heron stated that the differential birthrate by classes in London in 1850 could be explained by the disparity in the average natural life of women. In the present instance, if it is true that the average natural life of women in poor wards is short and that they die young after some childbirths, the fact is indisputable that the procreative rate of women of ages of bearing between 15 and 59 is high in low classes. It is nevertheless doubtful whether the differ-

ence of about 50 per cent. can be accounted for by this fact only.

2. In his study, Dr. Koyama counted the number of children born of women by their present husbands exclusively, no matter how often they married. If there are more divorces in poor classes than in other classes and also if many low-class women die young after giving birth to many children (and this is a fact), it would be too hasty to infer the birthrate from the results of Dr. Koyama's research. It is, however, noteworthy that the birthrate in Tokyo by wards approaches very closely to the result of his investigation. Another point worthy of attention in Dr. Koyama's investigation is the fact revealed that the number of children born of women whose ages of marriage ranged from 20 to 24, during their procreative period, showed little difference according to the classes to which these women belonged.

YASUMA TAKATA.
